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Appl. No. 09/997,906

SEP 28 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended): An apparatus for detecting a liquid leak from a fluid vessel comprising:

a pair of electrical conductors located in relative proximity to said fluid vessel, said pair of electrical conductors comprising at least one electrical conductor characterized by an electrically insulative, porous sheath effective to provide electrical isolation of said at least one electrical conductor from the other electrical conductor;

circuitry coupled to said electrical conductors effective to measure a resistance of the combination of the pair of electrical conductors and an electrical short therebetween caused by local conductivity through the porous sheath at a location whereat said liquid leak penetrates said sheath, whereby the resistance indicates the existence of a leak and the relative location of the leak along said at least one electrical conductor, wherein the liquid leak is ionic in nature; and

a drip tray wherein said at least one insulated conductor resides, and wherein the drip tray further has a portion of a circuit needed to determine a presence and a location of said leak, wherein said drip tray is electrically conductive, and wherein said drip tray is electrically grounded.

Claim 2 (original): The apparatus as claimed in claim 1 further comprising .

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Appl. No. 09/997,906

Claim 3 (original): The apparatus as claimed in claim 2 wherein said pair of electrical conductors comprises a second insulated conductor characterized by an electrically insulative, porous sheath, said pair of electrical conductors being in parallel adjacency.

Claim 4 (original): The apparatus as claimed in claim 2 wherein said pair of electrical conductors comprises said drip tray.

Claim 5 (original): The apparatus as claimed in claim 3 wherein said pair of electrical conductors comprises individually insulated conductors.

Claim 6 (original): The apparatus as claimed in claim 3 wherein said pair of electrical conductors comprises integrally insulated conductors.

Claim 7 (original): The apparatus as claimed in claim 1 wherein the circuitry comprises an ohmmeter.

Claim 8 (original): The apparatus as claimed in claim 1 wherein the circuitry comprises a voltage source and a current sensing circuit.

Claim 9 (original): The system according to claim 1 wherein the circuitry comprises a current source and a voltage sensing circuit.

Appl. No. 09/997,906

Claim 10 (previously presented): The apparatus as claimed in claim 1 wherein the said at least one insulated conductor comprises a chemically treated insulator which changes color when contacted by liquid, whereby leak existence and location may be discerned visually.

Claim 11 (original): The apparatus as claimed in claim 10 wherein the insulator is chemically treated with copper sulfate.

Claim 12 (original): The apparatus as claimed in claim 10 wherein said at least one insulated conductor comprises nichrome.

Claim 13 (currently amended): A method for determining existence and location of a fluid leak from a vessel comprising:

providing a pair of electrical conductors in proximity to said vessel, at least one of said pair of electrical conductors being elongated and having a sheath comprising an electrically insulative, porous material;

providing a drip tray wherein said pair of electrical conductors resides, and wherein the drip tray further has a portion of a circuit needed to determine a presence and a location of said leak, wherein said drip tray is electrically conductive, and wherein said drip tray is electrically grounded;

determining a resistance between said at least one of said pair of electrical conductors and said other electrical conductor; and

relating said resistance to one of a normal condition corresponding to the absence of a fluid induced electrical short between said pair of electrical conductors or a leak condition corresponding to the presence of an ionic fluid induced

Appl. No. 09/997,906

electrical short between said pair of electrical conductors, and further relating said resistance corresponding to a leak condition to a location along the at least one of said pair of electrical conductors.

Claim 14 (original): The method as claimed in claim 13 wherein both of said pair of electrical conductors comprise elongate conductors having a sheath comprising an electrically insulative, porous material.

Claim 15 (original): The method as claimed in claim 13 wherein the step of determining a resistance between said at least one of said pair of electrical conductors and said other electrical conductor includes measuring a resistance with an ohmmeter.

Claim 16 (original): The method as claimed in claim 13 wherein the step of determining a resistance between said at least one of said pair of electrical conductors and said other electrical conductor comprises:

providing a predetermined current to the pair of electrical conductors; and

measuring a voltage through said pair of electrical conductors corresponding to said predetermined current.

Appl. No. 09/997,906

Claim 17 (original): The method as claimed in claim 13 wherein the step of determining a resistance between said at least one of said pair of electrical conductors and said other electrical conductor comprises:

providing a predetermined voltage to the pair of electrical conductors; and

measuring a current through said pair of electrical conductors corresponding to said predetermined voltage.

Claim 18 (currently amended): A method for determining existence and location of a fluid leak from a vessel comprising:

providing a pair of electrical conductors in proximity to said vessel, at least one of said electrical conductors being elongate and having a sheath comprising an electrically insulative, porous material;

providing a drip tray wherein said pair of electrical conductors resides, wherein the drip tray further has a portion of a circuit needed to determine a presence and a location of said leak, wherein said drip tray is electrically conductive, and wherein said drip tray is electrically grounded;

providing one of a predetermined voltage and current to said pair of electrical conductors;

measuring the other one of a voltage and current not provided to said pair of electrical conductors; and

determining from said provided one of a predetermined voltage and current and said measured other one of voltage and current not provided the existence and location of a an ionic fluid induced electrical short between said pair of conductors

Appl. No. 09/997,906

Claim 19 (original): The method as claimed in claim 18 wherein the step of determining the existence and location of a fluid induced electrical short between said pair of conductors comprises measuring a resistance.

Claim 20 (original): The method as claimed in claim 19 wherein the resistance is measured with an ohmmeter.

Claim 21 (original): The method as claimed in claim 18 wherein the step of determining of existence and location of a fluid induced electrical short between said pair of conductors comprises the use of one of a personal computer, programmable logic controller and embedded processor.

Claim 22 (previously presented): The apparatus as claimed in claim 2, wherein the at least one insulated conductor comprises:
a sensing wire laid out in a zigzag pattern over a majority of the drip tray.

Claim 23 (cancelled)

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